

Negative automatic thoughts, social support and depression among senior high school students in Thailand

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ABSTRACT

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Depression represents a prominent public health concern present within diverse populations worldwide, and it is known to manifest across all genders as well as age groups. The current investigation constitutes a cross-sectional study aimed at exploring negative automatic thinking, social support, and depression among senior high school students in Samut Songkhram province, Thailand. The study sample consists of 373 senior high school students who were selected using a stratified random sampling method. Data were collected using online questionnaires. Data analysis was conducted using inferential statistics and the Pearson correlation coefficient. The study found that overall automatic negative thoughts were at a low level, while overall social support was at a moderate level ($M = 3.07$, $SD = 0.80$), and depression was at a moderate level. The analysis revealed a statistically significant positive correlation between negative thoughts and depression among high school students. Additionally, there was a statistically significant negative correlation between social support and depression. The results of this study will be valuable in guiding the development of teaching and learning strategies as well as mental health services that support student learning. They will also aid in planning for the care and prevention of depression in the future.

Keywords: negative automatic thoughts; social support; depression; senior high school students

1. INTRODUCTION

Depression is a significant and prevalent public health issue globally, affecting individuals across different demographics. Various factors, such as educational challenges, financial difficulties, family discord, and interpersonal relationships, can contribute to the onset of depression (Prompil et al., 2023). This condition is characterized by feelings of profound sadness, loss of motivation, unhappiness, and a pervasive sense of

disinterest in life. Lifestyle habits may undergo alterations, ultimately impacting daily functioning (WHO, 2022). Tragically, one of the most severe consequences of depression is suicide. Recent surveys indicate that as many as 700,000 individuals succumb to suicide each year, with those aged 15 to 29 being the highest risk group for such outcomes due to depression. Presently, it is estimated that 280 million individuals worldwide are grappling with depression (Department of Mental Health, 2023; WHO, 2022). In Thailand, a study by Panyawong et al. (2020),

using the Thai version of the patient health questionnaire for adolescents (PHQ-A), found that 17.5% of adolescents aged 11–19 had depression (PHQ-A ≥ 10), and 49.8% had mild depression (PHQ-A scores of 5–9). Adolescents at risk of suicide were 9.8 times more likely to experience depression than those not at risk. The three health regions with the highest prevalence of adolescent depression were Health Region 5 (25.0%), Health Region 7 (24.0%), and Health Region 13 (23.9%). Additionally, 20.5% of adolescents reported suicidal thoughts, 5.1% experienced suicidal ideation, and 6.4% had attempted suicide. Among all adolescents at risk of suicide, 22.5% were classified as at risk, with 2.2% identified as high-risk. Adolescents at risk of suicide were 9.8 times more likely to have depression than those not at risk (OR = 9.8; 95% CI: 8.4–11.5) (Panyawong, 2020). These statistics indicate that various factors influence adolescent mental health, including adaptation to developmental stages and societal changes in the era of “Thailand 4.0,” where the government emphasizes the increased use of technology to drive the country forward. The growing reliance on technology and social media in daily life due to these changes directly impacts the physical and mental health of the population, particularly during late adolescence (Uratanamnee & Lerdsamran, 2017).

Young people in late adolescence, meaning those aged between 16 and 19 years, commonly enrol as senior high school students. This age cohort is deemed susceptible to depression as a result of the various developmental hurdles they face concerning their age and educational endeavors (Piyasin & Ketuman, 2007). Social and environmental conditions in Thailand during the era of Thailand 4.0 are fraught with dynamic characteristics. Adolescents experience notable developmental transitions aligned with their chronological age (Yavuzer & Karatas, 2017). These transitions encompass aspects of physical, mental, emotional, and social development that unfold rapidly. Research has revealed increased growth rates in the physical body, particularly noteworthy in the context of fluctuations in sex hormone levels (Aung et al., 2022). Self-centered thinking, also known as egocentrism, is characterized by impulsive thoughts. Individuals exhibit easily fluctuating moods and tend to prioritize friendships over familial relationships. They strive to embody their ideal self-image and seek greater social acceptance (Chomchoei et al., 2020). During the transition from adolescence to adulthood, individuals may sometimes feel confused and unsure about their roles (Thapar et al., 2012). They may exhibit inappropriate behaviors according to their stage of development and have low self-esteem (Saw et al., 2020), leading to stress or feelings of sadness. Most late adolescents studying at the upper secondary level are facing the challenges of adjusting to their learning, which is considered a critical period for planning further education at the tertiary level (Rungrojwatanasiri et al., 2024). Some adolescents who are unable to meet the expectations of their families and society may experience mental health challenges such as depression (Amaltinga & Mbinta, 2020). The study revealed that 21.40% of high school seniors who are preparing for university entrance exhibit a high prevalence of depression (Uratanamnee & Lerdsamran, 2017). In addition to acclimating to the existing environment within the evolving digital era of technology and heightened internet communication, numerous late adolescents use

the internet for communication purposes, information retrieval, and establishing connections in the virtual realm. A proportion of these adolescents may possess deficient abilities in information discrimination or find themselves excessively absorbed in online pursuits, which could manifest symptoms of internet addiction, thereby elevating their susceptibility to depression (Pewnil & Isarabhakdi, 2015). A literature review revealed that the factors influencing the development of depression in adolescents include academic stress, self-esteem, negative thinking, and peer relationships (Makassawad, 2021).

With the increasing prevalence of adolescent behavioral problems related to mental health issues, high school students are in a high-risk group for mental health challenges due to their developmental stage. Further, the rate of depression among children and adolescents is steadily rising (Sakthivel et al., 2021). Depression is a condition caused by abnormalities in the brain that impact thoughts, emotions, feelings, behaviors, and physical health. Many people mistakenly view depression as merely a change in mood or mental state, often attributing it to disappointment or psychological trauma, such as financial difficulties, relationship problems, romantic conflicts, or loss. They assume that depression can be resolved with encouragement or emotional support alone (Giang et al., 2019). However, these underlying issues can intensify if they are not properly addressed, leading to stress, anxiety, and eventually depression, which may result in self-harm or suicidal thoughts. From a medical perspective, depression is recognized as a condition caused by an imbalance in three neurotransmitters: serotonin, norepinephrine, and dopamine. Therefore, treatment by a psychiatrist is crucial. In addition to therapeutic interventions, medication may also be required (Lin & Guo, 2024).

Statistics indicate that adolescents are a high-risk group with a significant propensity for developing depression. A study by Pandi (2015) involving 317 students aged 18–24 years old at Sisaket Technical College reported a depression prevalence rate of 53.5%. Similarly, research by Graber and Sontag (2009) found that the prevalence of depression tends to increase from 1.5–2.5% in childhood to 15–20% in late adolescence. Late adolescence, typically spanning the ages of 17–24, often coincides with the transition to higher education and represents a critical shift from childhood to early adulthood. This period is marked by rapid and profound changes across various aspects of life, often exceeding individuals’ emotional and psychological coping capacities (Makassawad, 2021). Consequently, adolescents in this stage frequently experience confusion about their identity, which can lead to internal conflicts (Koedbangkham, 2021). This developmental phase presents an elevated risk for emotional problems and heightened vulnerability to behavioral and mental health issues, such as substance abuse, aggressive or violent behavior, interpersonal conflicts, stress, and depression (Rienpradub et al., 2020). In the context of negative automatic thoughts, life crises can trigger distorted cognitive structures that arise spontaneously, without rational deliberation, and become uncontrollable. These distorted thoughts lead to the misinterpretation of events, often deviating from reality and fostering negative perceptions of oneself, the situations encountered, and the future. Such thought patterns adversely affect emotions and behaviors, ultimately contributing to the development of depression.

The researcher acknowledged the importance of the issue and showed interest in investigating negative automatic thoughts, social support, and depression among senior high school students in Samut Songkhram province. Adolescence is a pivotal period characterized by multiple life changes that can result in stress and subsequent depressive manifestations. This developmental stage is distinguished by notable physical, mental, emotional, and social changes as they progress into adulthood. Several elements play a role in the high prevalence of depression among Thai adolescents, such as hormonal changes, parental expectations, shifts in social circles, and evolving societal standards. Any disruptions to this intricate equilibrium may trigger depressive symptoms in adolescence. One survey revealed that more than 15 million individuals in Thailand aged 15 and older are affected by depression (Department of Mental Health, 2022); 755 patients with depression came for treatment in Samut Songkhram province (HDC Dashboard Samut Songkhram Provincial Health Office, 2023). The findings of this study are poised to enhance teaching and learning management, alongside mental health services aimed at enhancing the student learning experience, engaging stakeholders, and planning preventive measures against future depressive episodes.

2. MATERIALS AND METHODS

2.1 Study design and participants

This research was a cross-sectional descriptive study aimed at examining automatic negative thoughts, social support, and depression among senior high school students in Samut Songkhram province. Data collection was conducted between August and November 2023.

The sample group consists of senior high school students from Samut Songkhram in the 2023 academic year. The sample group was determined using Krecie and Morgun's formula to have a sample size of 318 people to prevent loss in the sample group. The researchers identified a loss rate of 10% within the sample group, resulting in a final sample size of 373 individuals. Stratified random sampling was used to choose the study participants. Each school was considered a stratum. The number of participants for each stratum was determined proportionately by the number of students in each school. Subsequently, simple random sampling was performed in each stratum using a random number table.

2.2 Research instruments

A questionnaire was used for data collection, divided into four parts as follows:

Part 1: General information comprised age, gender, educational attainment, academic performance (GPA), marital status, socioeconomic status, and family history of depression.

Part 2: The researcher implemented the assessment tool (Negative Automatic Thoughts Questionnaire) developed by Songmaung (2004), which comprises 15 questions. Respondents were presented with two options, 'yes' or 'no', for each question. A score of 1 is assigned if the respondent acknowledged having negative automatic thoughts, while a score of 0 was given if they did not report such thoughts. Based on the scoring criteria, the total score was categorized into three levels. A low level included scores ranging from 0 to 5 points, a moderate level ranged from 6 to 10 points, and a high level ranged from 11 to 15

points. The validity of the content of this questionnaire was verified by three mental health research experts, resulting in an item objective congruence (IOC) score of 0.89. A pilot test with 30 individuals similar to the sample group evaluated the reliability of the questionnaire, yielding a Cronbach's alpha value of 0.95.

Part 3: The social support questionnaire, developed by Boonyamalik (2005), consisted of 12 questions in a Likert scale format with 5 levels: strongly disagree, disagree, moderate, agree, strongly agree, scored from 1–5, respectively. The scoring guidelines for the 5 levels are as follows: scores ranging from 1.00–1.80 indicated strongly disagree, 1.81–2.60 indicated disagree, 2.61–3.40 indicated neutral, 3.41–4.20 indicated agree, and 4.21–5.00 indicated strongly agree. The validity of the content of this questionnaire was verified by three mental health research experts, resulting in an IOC score of 0.90. A pilot test with 30 individuals similar to the sample group evaluated the reliability of the questionnaire, yielding a Cronbach's alpha value of 0.94.

Part 4: The depression assessment form was adapted by researchers from a study developed by Ritkumrop (2020). It consisted of 20 questions in a Likert scale format with 4 levels: never, rarely, sometimes, and always, with negative questions scored 0–3 points in order, and positive questions scored 3–0 points in order. The score interpretation criteria were divided into 3 levels, with a score of 0–16 indicating no depression, a score of 17–21 indicating moderate depression, and a score of 22 or higher indicating severe depression. The validity of the content of this questionnaire was verified by three mental health research experts, resulting in an IOC score of 0.87. A pilot test with 30 individuals similar to the sample group evaluated the reliability of the questionnaire, yielding a Cronbach's alpha value of 0.91.

Ethical approval: The research was approved by Human Research Ethics Committee, Suan Sunandha Rajabhat University, COA No. 1–036/2023.

2.3 Data collection

Data were collected using a self-administered questionnaire distributed through Google Forms between August and November 2023. The researchers conducted briefing sessions with participants to explain the questionnaire completion process, provide details on response methods, and obtain informed consent. Participants were given 20–30 min to complete the questionnaire, and the researchers ensured that the required sample size was achieved.

2.4 Statistical analysis

Data analysis was performed using SPSS software. Descriptive statistics, including frequency, percentage, median, arithmetic mean (M), and standard deviation (SD), were used to analyze the general characteristics of the sample. Pearson's product-moment correlation coefficient was employed to examine the relationship between negative automatic thoughts, social support, and depression among senior high school students in Thailand.

3. RESULTS AND DISCUSSION

3.1 Results

The research participants consisted of 373 senior high school students, most of whom were female (61.9%). Most



of the participants were 16 years old (31.6%) and in the 5th year of high school (36.7%). Their academic performance ranged between 2.51 and 3.00 (34.6%). The majority of the samples had an economic status of "just enough and able to save money" (55.5%), and most of the participants' families had no history of depression (85.3%).

The average scores for negative automatic thoughts among the research participants were at a low level ($M = 0.38$, $SD = 0.22$). Specifically, the sample group had a high level of negative automatic thoughts, followed by a moderate level, and a low level, as shown in Table 1.

The research participants had an overall moderate level of social support ($M = 3.07$, $SD = 0.80$), with a moderate level of social support, mild disagreement for social support, mild agreement for social support, strong agreement for social support, and strong disagreement for social support, as shown in Table 1.

The participants had depression scores in the range of moderate depression ($M = 1.24$, $SD = 0.41$), with moderate depression, mild depression, and high depression, as shown in Table 1.

Table 1. Level of negative automatic thoughts, social support, and depression in participants ($n = 373$)

Range of average scores	n (%)	Level
Level of negative automatic thoughts		
11–15	32(8.58)	High
6–10	166(44.50)	Moderate
0–5	175(46.92)	Low
Level of social support		
4.21–5.00	29(7.77)	Strongly agree
3.41–4.20	93(24.93)	Agree
2.61–3.40	130(34.85)	Moderate
1.81–2.60	111(29.76)	Disagree
1.00–1.80	10(2.68)	Strongly disagree
Level of depression		
>22	8(2.14)	High of depression
17–21	238(63.81)	Moderate of depression
0–16	127(34.05)	Mild of depression

The relationship between negative automatic thoughts, social support, and depression in the sample group revealed that negative automatic thoughts had a positive

correlation with depression. In contrast, social support had a statistically significant negative correlation with depression, as shown in Table 2.

Table 2. Relationship between social support, negative automatic thoughts and depression of participants using Pearson's product-moment correlation ($n = 373$)

Variables	Depression	
	Pearson correlation (r)	p-value
Negative automatic thoughts	.473	<0.001*
Social support	-.255	<0.001*

Note. * $p < .05$

3.2 Discussion

The study found that the sample group generally had low levels of automatic negative thinking ($M = 0.38$, $SD = 0.22$). This could be attributed to the senior high school students in Samut Songkhram province, who typically perceive themselves as valuable individuals capable of socializing well, understanding academic content, and comprehending people around them, such as teachers and friends (Prompil et al., 2023). These attributes contribute to their ability to manage depression. This finding aligns with Beck's cognitive theory, which suggests that individuals with fewer negative automatic thoughts about themselves, the world, and the future are less likely to develop depression. Conversely, individuals with a high frequency of negative automatic thoughts are more susceptible to depression (Beck, 1967). Furthermore, these findings correspond with the study by Prompil et al. (2023), who noted that a scarcity

of negative automatic thoughts prevents depression. Conversely, an increase in negative automatic thoughts corresponds with heightened depression, creating a feedback loop where negative automatic thoughts perpetuate a continuous cycle (Prompil et al., 2023). In cases where senior high school students experience fewer negative automatic thoughts due to personal issues or psychological stimuli causing distress, they typically seek guidance from peers or teachers to address various challenges as they arise.

The research participants had a moderate level of overall social support ($M = 3.07$, $SD = 0.80$). This was because, during their school years, they received care and assistance from friends, teachers, or close individuals concerning various aspects of life. Meanwhile, factors such as help and trust within their families were also moderate. This allowed the students to obtain life guidance from

friends and close individuals (Prompil et al., 2023). As a fundamental aspect, social support influences life guidance, which is a key factor impacting living. The research findings align with those of Makassawad (2021), who studied factors related to depression among high school students. It was found that high school students receiving high levels of social support had a lower risk of depression ($OR = 0.871, p = 0.06$). This suggests that receiving low to moderate levels of social support tends to be associated with higher levels of depression (Koedbangkham, 2021). However, previous research findings showed that social support is negatively correlated with depression (Giang et al., 2019).

The level of depression among senior high school students was moderate ($M = 1.24, SD = 0.41$). This is because high school is a critical period in adolescents' lives, causing many to experience self-imposed pressure, which leads to fatigue and discouragement. Additionally, relationships with family, friends, and close individuals affect students' stress levels, which can contribute to depression (Giang et al., 2019). This is consistent with research by Rienpradub et al. (2020), which found that a sample group with good social support, a stable economic status, personal expectations, and easy access to teachers are more likely to seek help for problem-solving. This approach is an excellent way to prevent depression.

Regarding the analysis of the relationship between negative automatic thoughts, social support, and depression among high school students, it has been found that negative automatic thoughts are positively correlated with depression. In contrast, social support exhibits a negative correlation (Rungrojwatanasiri et al., 2024). Social support is a protective factor that mitigates the impact of adverse life situations. Individuals with strong social support are believed to be better equipped to cope effectively with significant life changes. Conversely, inadequate social support increases the likelihood of developing depression (Pewnai & Isarabhakdi, 2015). Social support indirectly influences depression by reducing stress and promoting recovery from depressive symptoms. Additionally, individuals facing various events undergo processes of interpretation, cognitive appraisal, and other factors that act as mediators leading to depression (Koedbangkham, 2021). Previous studies have established that negative automatic thoughts are inherently directed toward situations that occur automatically, thereby inducing negative emotions in individuals. Various events and situations among adolescents in Thailand are perceived as changing or challenging, which can contribute to the development of depression (Prompil et al., 2023).

4. CONCLUSION

This study focuses on the imperative development of activities aimed at enhancing self-esteem and fostering adaptive life skills among students as a preventive measure against depression. Collaboration between parents and educational institutions should involve the strategic organization of diverse activities tailored toward the holistic development of students. These efforts are designed to provide students with opportunities to unwind from academic pursuits, thereby mitigating stress levels that may potentially precipitate depression.

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AUTHOR CONTRIBUTIONS

N.S., P.P., S.S., and S.C. contributed to the conception and design of the study. Material preparation, data collection, and data analysis were performed by W.M.K., A.I., and K.S. The first draft of the manuscript was written by N.S., and P.W. provided comments on previous versions of the manuscript. All authors read and approved the final manuscript.

REFERENCES

- Amaltinga, A. P. M., & Mbinta, J. F. (2020). Factors associated with depression among young people globally: A narrative review. *International Journal of Community Medicine and Public Health*, 7(9), 3711–3721. <http://dx.doi.org/10.18203/2394-6040.ijcmph20203949>
- Aung, T. N. N., Moolphate, S., Koyanagi, Y., Angkurawaranon, C., Supakankunti, S., Yuasa, M., & Aung, M. N. (2022). Depression and associated factors among community-dwelling Thai older adults in Northern Thailand: The relationship between history of fall and geriatric depression. *International Journal of Environmental Research and Public Health*, 19(17), Article 10574. <https://doi.org/10.3390/ijerph191710574>
- Beck, A. T. (1967). *Depression: Clinical, experimental and theoretical aspects*. Harper & Row.
- Boonyamalik, P. (2005). *Epidemiology of adolescent suicidal ideation: Roles of perceived life stress, depressive symptoms, and substance use* (Publication No. 3172548) [Doctoral dissertation, Johns Hopkins University]. ProQuest Dissertations and Theses Global.
- Chomchoei, C., Apidechkul, T., Keawdounglek, V., Wongfu, C., Khunthason, S., Kullawong, N., Tamornpark, R., Upala, P., & Yeemard, F. (2020). Prevalence of and factors associated with depression among hill tribe individuals aged 30 years and over in Thailand. *Heliyon*, 6(6), Article e04273. <https://doi.org/10.1016/j.heliyon.2020.e04273>
- Department of Mental Health. (2022, January 18). *Open statistics on depression and Thai society: The silent emotional dangers of modern people*. <https://dmh.go.th/news-dmh/view.asp?id=31459> [in Thai]
- Department of Mental Health. (2023, February 12). *Report on the suicide situation in Thailand*. <https://suicide.dmh.go.th/news/view.asp?id=92> [in Thai]
- Giang, L. T., Nguyen, T. T., & Tran, N. T. T. (2019). Factors associated with depression among older people in Vietnam. *Journal of Population and Social Studies [JPSS]*, 27(2), 181–194. <https://doi.org/10.25133/JPSSv27n2.0012>
- Graber, J. A., & Sontag, L. M. (2009). Internalizing problems during adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Individual bases of adolescent development* (3rd ed., pp. 642–682). John Wiley & Sons. <https://doi.org/10.1002/9780470479193.adlpsy001020>



- HDC Dashboard Samut Songkhram Provincial Health Office. (2023). *Statistics on the number of patients with depression*. HDC Health Center. <https://skm.hdc.moph.go.th/hdc/main/index.php> [in Thai]
- Koedbangkham, J. (2021). *Factors associated with depression among Thai labors in the eastern economic corridor, Thailand* (021/2562). Burapha University. <https://buuir.buu.ac.th/xmlui/handle/1234567890/4403>
- Lin, J., & Guo, W. (2024). The research on risk factors for adolescents' mental health. *Behavioral Sciences*, 14(4), Article 263. <https://doi.org/10.3390/bs14040263>
- Makassawad, R. (2021). Factors influencing depression among high school students in Pathum Thani province. *Regional Health Promotion Center 9 Journal*, 15(38), 528–540. <https://doi.org/10.14456/rhpc9j.2021.38> [in Thai]
- Pandi, W. (2015). Prevalence of depression and its association in late adolescents: A case study in Sisaket technical college. *Thai Journal of Public Health*, 45(3), 298–309. [in Thai]
- Panyawong, W., Santitadukul, R., & Pavasuthipaisit, C. (2020). Prevalence of depression and suicidal risks in Thai adolescents: A survey in schools from 13 Public Health Region. *Journal of Mental Health of Thailand*, 28(2), 136–149. [in Thai]
- Pewnail, T., & Isarabhakdi, P. (2015). Communication technology use behavior and mental health of secondary school students in Kanchanaburi province. *Thammasat Journal*, 34(2), 134–149. <https://doi.org/10.14456/tujournal.2015.7> [in Thai]
- Piyasin, W., & Ketuman, P. (2007). *Child and adolescent psychiatry volume 2*. Thana Press.
- Promptil, S., Phandee, A., Songsin, N., Kingkaew, W. M., Siladlao, S., Somporn, K., & Pianjing, P. (2023). The relationships between social support, negative automatic thoughts and depression among college students of a university. *Journal of Health Science Research*, 17(2), 39–49. [in Thai]
- Rienpradub, S., Phimphakarn, K., Kuesakul, P., & Kuesakul, K. (2020). Study on depression, stress and problem management of freshman in King Mongkut's University of Technology North Bangkok. *Journal of Human Sciences*, 21(2), 103–119. [in Thai]
- Ritkumrop, K. (2020). *Integrative counseling program on the emotional regulation of undergraduate students with depression* [Doctoral dissertation, Srinakharinwirot University]. iThesis Srinakharinwirot University. <https://ir-ithesis.swu.ac.th/handle/123456789/893> [in Thai]
- Rungrojwatanasiri, P., Jirarode, A., & Petpichetchian, W. (2024). The effects of an internet-based cognitive behavioral therapy program on depression in Thai high school students: A quasiexperimental study. *Pacific Rim International Journal of Nursing Research*, 28(2), 439–454. <https://doi.org/10.60099/prijnr.2024.262983>
- Sakthivel, A., Kannappan, S., & Panicker, A. S. (2021). Prevalence of mental health problems among high school students. *Indian Journal of Community Medicine*, 46(3), 574–575. https://doi.org/10.4103/ijcm.IJCM_1041_20
- Saw, J. A., Tam, C. L., Thanzami, V., & Bonn, G. (2020). Contextualized school-based cognitive behavioral therapy (CBT) intervention for Malaysian secondary school students. *Frontiers in Psychiatry*, 11, Article 565896. <https://doi.org/10.3389/fpsy.2020.565896>
- Songmaung, K. (2004). *Automatic negative thoughts among early adolescent students* [Unpublished doctoral dissertation]. Chiang Mai University. [in Thai]
- Thapar, A., Collishaw, S., Pine, D. S., & Thapar, A. K. (2012). Depression in adolescence. *The Lancet*, 379(9820), 1056–1067. [https://doi.org/10.1016/S0140-6736\(11\)60871-4](https://doi.org/10.1016/S0140-6736(11)60871-4)
- Uratnamnee, S., & Lerdsamran, S. (2017). Stress anxiety and depression of high school teenager in preparation for university admission. *The Journal of Psychiatric Nursing and Mental Health*, 31(2), 78–94.
- WHO. (2022, September 13). *Depression*. https://www.who.int/health-topics/depression#tab=tab_1
- Yavuzer, Y., & Karataş, Z. (2017). Investigating the relationship between depression, negative automatic thoughts, life satisfaction and symptom interpretation in Turkish young adults. In D. Breznoščáková (Ed.), *Depression* (pp. 71–89). InTech. <https://doi.org/10.5772/66622>